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AUTHOR Wood, Julia T.
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ABSTRACT

This study investigated cognitive impairment as a function of reflective fear arousal and also the relationship between the creation of cognitive impairment and resulting attitude change. A three-part measuring instrument was developed to assess attitudes, evaluate perception of alleged danger, and determine credibility. The subjects were 112 college students enrolled in a basic speech course. An 11-minute speech was presented to the subjects by a graduate student in speech. The message was designed to evoke reflective fear. Using a modified motivated-sequence pattern, the speech presented a detailed discussion of the dangers of unregulated firearms, proposed corrective legislation, and dealt with anticipated audience reservations. Of the 112 subjects who had taken the pretest 12 days prior to the presentation, 77 were available for the administration of treatments. Of these students, 22 listened to the 11-minute speech, 33 listened to the same speech with the addition of five visual aids, and 22 served as controls. The findings indicated that the arousal of reflective fear does create cognitive impairment, but the existence of this form of cognitive impairment does not impede persuasion. (WR)

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A PRELIMINARY STUDY OF COGNITIVE IMPAIRMENT AS A FUNCTION OF REFLECTIVE FEAR-AROUSAL IN PERSUASION

Julia T. Wood*

The Pennsylvania State University

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*Ms. Wood is a doctoral candidate in the Speech Communication Department of the Pennsylvania State University. This paper is based upon her M.A. thesis which was completed in August of 1973 under the direction of Paul D. Brandes who is a Professor of Speech at the University of North Carolina.

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A PRELIMINARY STUDY OF COGNITIVE IMPAIRMENT AS A FUNCTION OF REFLECTIVE FEAR-AROUSAL IN PERSUASION

Although more than twenty years have elapsed since researchers began systematically investigating the nature and effects of fear appeals as persuasive devices, scholars have not yet developed stable and comprehensive theories regarding the impact of fear appeals and the variables which affect their success. The purpose of this paper is to present findings on the effects of arousing reflective fear in an effort to produce attitude change.

THEORETICAL ORIENTATIONS REGARDING FEAR-AROUSAL

In 1950 Dollard and Miller posited a fear-drive model which viewed the arousal of fear as a force which motivated subjects to reduce the unpleasant emotional state.[1] Three years later Janis and Feshbach advanced the theory that the relationship between emotional arousal and attitude change is simply one of "minimal fear-maximum compliance."[2] However, in 1965, Powell's research suggested that the interaction between aroused fear and compliance was diametrically opposed to the one postulated by Janis and Feshbach.[3] Susceptibility to fear-arousing persuasion was predicted by a sophisticated mathematical model that McGuire developed in 1966. His theory viewed the relationship between fear-arousal and compliance as a non-monotonic function in which there is a negative relationship between the arousal of high fear and compliance when the audience has high initial concern for the topic. However, according to McGuire's model, when the audience has low initial concern for the topic there is a converse relationship in which the creation of high anxiety results in compliance.[4]

One of the more reasonable theories regarding the relationship between the arousal of fear and resulting attitude change was advanced by Janis in 1967. Viewing reflective fear as an emotional state at least partially caused by reflective thought and mediated by higher mental processes, Janis asserted that the level of emotional arousal resulting from reflective fear is roughly proportional to the perceived probability of the danger's occurrence and the anticipated magnitude of damage. Janis went on to state that when reflective fear is aroused there is a strong need for reassurances to alleviate emotional tension. Janis labels this as a hypervigilant state which is characterized by selective attention, and which may result in cognitive impairment. According to Janis if cognitive impairment does occur the reception of the message will be impeded.

Janis offered a convincing argument for his theory of a non-monotonic relationship between fear arousal and attitude change by demonstrating that the optimal level of fear can be affected by variables of cognitive impairment, insufficient vigilance, and unintended attitude change as a result of residual emotional tension. In conclusion Janis contended that as emotional arousal increases subjects will experience heightened motivation to alleviate the undesirable tension. If the emotional arousal is extreme it will result in the mobilization of resistances, i.e., defensiveness, minimization of the threat, and/or suspicion of the communicator.[5]

CONDITIONS AFFECTING IMPACT OF FEAR AROUSING APPEALS

Effects of Topical Saliency

Janis considered saliency as a two-factor variable which consists of both the probability of occurrence of a given threat and the anticipated degree of damage or harm that would result from the threat's occurrence. If we grant that the arousal of emotional tension is a prerequisite for a fear appeal's success, then it becomes self-evident that the stimulus topic must be perceived as relevant by the audience. Numerous experimental studies have confirmed the intimate relationship that exists between topical saliency and resulting persuasion. Janis' study of the effects of air war on emotional stress revealed that subjects who perceived the threat of air war as most meaningful (probable) were the most persuaded by the fear appeal.[6] In a 1960 experiment Berkowitz and Cottingham found

that listeners who did not drive a car frequently were relatively unaffected by a threatening communication focused on the importance of wearing safety belts.[7] An extensive field-study by Kraus, El-Assal, and DeFleur indicated that saliency must be established if a fear appeal is to function successfully.[8]

Despite this obvious relationship between topical relevance and resulting persuasive effects, much of the previous experimental work has not adequately established the saliency of the presentation topic, and in other studies the level of saliency has been widely varied with topics ranging from roundworms to cancer. This lack of attention to the importance of topical saliency may provide at least a partial explanation for the inconsistency in experimental findings regarding fear appeals. Janis stressed the importance of saliency by stating that if the danger is not related to the audience there will be insufficient vigilance (emotional arousal), and the fear appeal will necessarily fail in its persuasive attempt.

Effects of Hyper-vigilance

According to Janis when the topic is sufficiently salient to arouse emotional tension, then the listeners may become hyper-vigilant, displaying a strong need for reassurances and attending selectively. Extensive investigations have shown that varying levels of fear arousal do not produce differential learning effects (Fisher, et. al., 1967; Goldstein, 1959; Gollob and Ditts, 1965; Janis and Feshbach, 1953; Millman, 1968; Singer, 1965). However, research has failed to focus on the role of selective attention, and how much is learned may well be different from what is learned.

One study, conducted by Janis and Milholland in 1967, suggested that selective attention may occur when a hyper-vigilant state has been created. After presenting a speech on the importance of dental hygiene, the subjects who had received the high-fear treatment and those who had received the low-fear treatment displayed equal ability to recall the major content of the message. However, the researchers reported that there was a tendency toward selective recall of specific information among the high-fear subjects.[9] While this finding does seem to offer support for the hypothesis that selective attention is operant when a hyper-vigilant state is aroused,

this evidence should be regarded as tentative since the results may have been confounded by the experimenters' use of messages of varying lengths. Before the selective attention hypothesis can be convincingly confirmed, more research is required.

Effects of Cognitive Impairment

There is considerable support for Janis' assertion that cognitive impairment or the mobilization of resistances may result from hyper-vigilance. As early as 1953 research findings offered preliminary confirmation of cognitive impairment as a reaction to excessive emotional arousal. From their classic experiment Janis and Feshbach drew the defensive-avoidance hypothesis: extreme emotional arousal tends to produce a defensive reaction in which the listeners ignore or minimize the presented threat.[10] Goldstein's 1959 investigation yielded further support for the proposition that high levels of fear may cause interfering effects as a result of the subjects' attempts to reduce tension. Goldstein found that high levels of fear are less persuasive than low levels. When the high-level message was presented, the audience disassociated itself from a relationship with the material in what Goldstein labeled "non-coping behavior."[11] In 1960 Berkowitz and Cottingham reported similar findings when they presented minimal and strong fear messages to college students. They found an inverse relationship between increasing levels of fear and resulting attitude change.[12] Again, we find support for Janis' hypothesis that a defensive reaction is elicited by high levels of fear and that this defensive reaction impedes the success of persuasion.

Janis' theory regarding the mobilization of resistances when confronted by excessive fear does not limit itself to the effect of defensiveness in the form of minimization of the threat. It also suggests that subjects may react by discrediting the source of the threat. At least two studies have shown that this reaction may indeed occur. In 1960 Katz's research with fear appeals led him to hypothesize that when emotional tension is not relieved by adequate reassurances, the listeners will respond by discrediting the source, thereby relieving their unpleasant emotional state.[13] Later, in 1966, Miller and Hewgill turned their attention to the interaction between source credibility and the effectiveness of fear appeals. Their research showed that a high-fear message from a

source of low credibility will be unsuccessful in eliciting attitude change. Miller and Hewgill hypothesized that the lack of attitude shift was a result of the subjects' attempts to relieve their tension by further discrediting the source of the high-fear appeal.[14] Both Katz's and Miller and Hewgill's studies provide additional support for Janis' assertion that high levels of fear may lead to the mobilization of resistances.

Implications

The foregoing survey of relevant research in the area of fear arousal offers substantial evidence for the utility of Janis' theory of the relationship between reflective fear and attitude change as a non-monotonic function, which is influenced by variables such as saliency, emotional arousal, and cognitive impairment or the mobilization of resistances. Within this framework provided by Janis perhaps we may reconcile some of the apparently contradictory and inconsistent findings that have for so long characterized the study of fear appeals.

Using Janis' model of fear appeals the present study investigated cognitive impairment as a function of reflective fear-arousal. This research also explored the relationship between the creation of cognitive impairment and resulting attitude change.

HYPOTHESES

The two null hypotheses of the present study were: (1) The arousal of reflective fear will not result in a state of cognitive impairment. (2) The presence of cognitive impairment will not impede the persuasive effects of a message.

METHOD

Instrumentation

In order to test the null hypotheses a three-part measuring instrument was developed. The first portion consisted of three pre-post test

items which assessed attitudes. Each item was an assertion which was positioned over a 9-point response scale. The first assertion was: "Possession of firearms should be forbidden to all private citizens." This deliberately extreme statement with its overt personal implications was designed to assess the degree of defensiveness exhibited by the subjects. The second assertion was: "Manufacture and sale of firearms should be more strictly regulated in the U.S." This statement, expressing the central theme of the message, did not directly involve the subjects on a personal level, i.e., it advocated change in society without explicitly referring to the subjects. The third assertion was: "The U.S. Constitution gives us the unconditional right to own a gun." This statement was designed to measure the subjects' recall of information that was given in the experimental speech. During the presentation, the speaker devoted attention to interpreting the constitution's stance on gun ownership as a conditional right, so the third assertion indexed the subjects' retention of information.

In addition to the matched pre-post items, the post test also included three linear-scale assertions which evaluated the subjects' perception of the alleged danger. Two Woodward scales measured the subjects' assessment of their own fright and that of their peers.[15] Finally, the post test included a credibility scale consisting of six paired bi-polar adjectives taken from McCroskey's semantic-differential scales for the measurement of ethos.[16]

Administration of Treatments

The experiment was conducted during the regular class periods of three sections of the basic Speech course at the University of North Carolina during the spring semester of 1973. In an effort to minimize suspicion the students were told that, because the Speech Division had thought they should be exposed to manuscript style speaking, one of the Speech graduate students would deliver a model manuscript presentation. This rationale was given to the students.

Following this introduction was the presentation of an eleven minute speech which argued for the adoption of strict domestic controls on the manufacture and sale of firearms in the United States. Since the message was designed to evoke reflective fear (as opposed to neurotic), the argu-

ments of the speech were predominantly based upon substantive and authoritative evidence such as statistics, examples, and expert testimony. Using a modified motivated-sequence pattern, the speech presented a detailed discussion of the dangers of unregulated firearms, proposed corrective legislation, and dealt with anticipated audience reservations. This structural approach, coupled with the employment of substantive supports, was intended to maximize the probability of creating reflective fear in the students.

Out of the total of 112 students who had taken the pretest twelve days prior to the presentation, 77 were available for the administration of treatments. The analysis of data included only those students for whom pre and post tests could be matched. Of these students, 22 listened to the eleven minute speech and 33 listened to the same speech with the addition of five visual aids. Another group of 22 students served as controls.

RESULTS

An initial examination of the data indicated that the two treatment groups (with visual aids and without visual aids) were essentially homogeneous in their responses to all of the measurement criteria. Since the inclusion of five visual aids in one treatment had produced no effects in terms of the study's concerns, a combination of the two treatment groups seemed warranted. Consequently, in the analysis of data the two treatment groups were consolidated.

Using dependent t-tests for correlated data, the pre-post responses of the combined treatment groups were compared.[17] On item 1, which was intended to measure defensive behavior, the students did not differ significantly in their pre and post responses. On item 2, which evaluated the students' attitudes toward the thesis of the presentation, there was a significant difference between the pre and post responses (t=2.31;df=53). Item 3, which tested the students' attentiveness and retention of information, also showed a significant shift between the pre and post responses (t=3.88;df=53). Both of the significant shifts were toward the direction advocated by the experimental presentation. There were no significant shifts between the pre and post responses of the control group on any of these items.

The treatment group's responses to the linear scale items which measured the students' perception of danger indicated that the students had recognized a danger. The students' respective mean scores toward the inadequacy of our present gun laws, the threat presented by unregulated firearms, and their personal worry about the situation were 3.13, 3.07, and 4.05 on a scale of 1 to 9 where 1 represented strong agreement that a serious problem existed.

In response to the post test item regarding the students' evaluation of the amount of fear that they had personally experienced as a result of the presentation the students' expressed perception was that they had experienced minimal fear. They responded with a mean score of 4.95 on a 7-point scale where 1 indicated extreme fear. The students evaluated their peers as having been significantly more frightened than they themselves were. The students' mean rating of their peers' fright resulting from the presentation was 4.05 which was significantly higher than their ratings of personal fear (t=5.32;df=53).

All of the pre and post items were analyzed in a 19 x 19 correlation matrix.[18] Out of 18 possible correlation coefficients, only three variables were associated with the speaker's trustworthiness at a level of more than .14, and .37 was the highest coefficient. The students' mean rating of the speaker's trustworthiness was 2.90 on a scale of 1 to 7 where 1 represented a high evaluation.

Discussion of Findings

In interpreting the results of this investigation attention will be focused on the relationship between this study's findings and Janis' theory of cognitive impairment as a function of the arousal of reflective fear. In Janis' concept the first consideration is the saliency of the topic, since that must be established in order to creat reflective fear. The students in the treatment group expressed considerable agreement with the following three assertions: (1) "Our present gun laws are inadequate." (2) "Uncontrolled possession of firearms is a threat to citizens' safety." (3) "I am now seriously worried about the dangers presented by unregulated firearms in the U.S." The intensity of the students' agreement with these statements indicates that they did perceive the danger as being quite real and as being worthy of their attention. A second indicator of the subjects'

concern with the danger of unregulated guns is the significance of attitude shift between pre and post responses to the thesis statement which asserted that we need stricter regulations governing the manufacture and sale of firearms in the U.S. This significant positive shift was interpreted as a consequence of the students' reactions to the danger that they had perceived. These findings adequately support the contention that the topic of the experimental presentation was perceived as salient and that the students did perceive the existence of a danger.

According to Janis' theory if a danger is perceived as being sufficiently salient, then a state of vigilance will be created in the listeners. In order to determine whether vigilance was aroused we must first identify the behavioral manifestations of vigilance, i.e., in attempting to determine whether vigilance existed what "signposts" may we look for? Janis suggests that there are at least two fairly consistent indicators of a vigilant state: selective attention and the search for reassurances to alleviate emotional tension. The presence of either or both of these behaviors in the students would be indicative of the presence of vigilance. Unfortunately, the post test contained no provision for the measurement of selective attention, so we cannot determine whether this behavior existed.

The post test did include a measurement of the search for reassurances which is the second characteristic of vigilance. An examination of the post test responses revealed an interesting instance of one form of the search for reassurances. On several of the post test items the students had expressed considerable concern regarding the dangers of the existing firearms legislation, and on one of the post test items the students had agreed that they were "seriously worried" about the situation. However, when explicitly asked to assess their own fear the students denied being afraid. They did believe, however, that their peers were somewhat frightened by the presentation; in fact, the students perceived their peers as being significantly more frightened than they personally were. One method of gaining reassurance in the face of danger is to heighten self-esteem, and this seems to be what the students were doing. By denying personal fear while maintaining that others were afraid, the students were able to regard themselves as more courageous or more competent of coping with fear than their peers. "Blanket reassurances" is the term that Janis coined

for this "maybe others, but not me" type of reasoning which is often employed as a means of increasing self-esteem when confronted with a highly fear arousing communication. The pattern of responses suggests that the students were searching for reassurances to alleviate their emotional tension. Furthermore, the intensity of this defensive reaction suggests that the students had passed from a state of healthy vigilance over a legitimate danger into a state of hyper-vigilance marked by excessive defensiveness. Therefore, there is reason to believe that a hyper-vigilant reaction occurred in the students.

From the findings, then, we may conclude that saliency was established and that a hyper-vigilant state was created in the students. Since the results of this study have thus far followed the pattern that Janis predicted, we may now turn our attention to the first of the major questions addressed by this investigation: Does the creation of reflective fear result in a state of cognitive impairment?

Once again, prior to interpreting the findings, we must establish the observable behaviors that would indicate the existence of cognitive impairment. Janis offers us three measures of cognitive impairment: defensiveness, minimizations of the threat, and suspicion of the speaker. The presence of any one of these behaviors would provide basis for arguing the existence of cognitive impairment, and a combination of these reactions would render sufficient support for a claim that cognitive impairment had occurred.

Let us first consider whether we have any evidence of defensive behavior(s) in the students. The first pre-post item was designed to measure defensiveness by evaluating the students' responses to an extreme statement which involved them personally. This was the only item of the three pre-post criteria which did not produce a significant shift in attitudes. The students' refusal to agree with this assertion could reasonably be interpreted as a defensive reaction, i.e., they refused to yield any of their personal freedom although they strongly agreed that regulations should be more strict. Contrasted with the students' expressed worry about the issue, their denial of fear provides a second and a stronger indication of defensiveness. The latter response was identified as a defensive reaction to the aroused fear. The responses in both of these cases, particularly the second one, provide substantial evidence of the presence of defensive behaviors.

Janis' second indicator of cognitive impairment consists of attempts to discredit the source of the threatening communication. An effort was made to check for this reaction by including McCroskey's ethos measurement on the post test. However, because of presumed sponsorship effects, it was impossible to determine whether the students attempted to discredit the speaker. The low correlation coefficients for trust and other post test items support the contention that a sponsorship effect was operant. The high mean rating of trustworthiness is presumably the result of the introduction that was given to the speaker. After being told that a model speech was to be presented by a graduate student, the treatment students probably assumed that the source was trustworthy.

As a final index of cognitive impairment Janis suggests that we may look for attempts to minimize the danger. Although there was no specific item for measuring this possibility, there were some indications of attempts to mitigate the perception of a danger. The most noticable example of this behavior is the students' protestation of personal fear. In addition to raising self-esteem, this denial of fear could have served as a method of self-persuasion that there was really nothing to worry about. This finding, while not conclusive, is suggestive of an attempt to minimize the perception of danger.

One final observation should be made regarding the findings of this study. Janis, at the outset of his discussion of fear appeals, mentions that one of the relatively invariant behavioral consequences of fear-arousal is the subjects' consideration of alternatives--the search for methods of avoiding the presented threat. The most statistically significant finding of this research was the shift between pre and post mean responses on the third item which asserted that "The U.S. Constitution gives us the unconditional right to own a gun." While there were other significant findings, this shift of attitude is by far the most dramatic one observed in this study. By admitting that gun ownership is a conditional privilege, the students may have felt that they were recognizing the need for some type of control and yet avoiding any definite committment to the proposed recommendation of legislative reform. In other words, the students may have reasoned, consciously or subconsciously, that by imposing the restraint of conditionality on gun ownership they were attending to the problem without having to endure any personal sacrifice. This alternative to the recommended

plan could have provided the students with a means of supplying their own reassuring recommendation. From observations of defensive behaviors and from suggestions of attempts to minimize the threat, we may conclude that cognitive impairment did occur.

Item 2 of the pre-post test stated the central theme of the presentation: "Manufacture and sale of firearms should be more strictly regulated in the U.S." There was a significant positive shift between the pre and post responses to this item, so we may conclude that the message was successful in its persuasive endeavor.

IMPLICATIONS

Based on the findings of this study there are grounds for the rejection of the first null hypothesis that the arousal of reflective fear does not result in cognitive impairment. Results of the analysis of data indicated that reflective fear was aroused and that it led to a state of hyper-vigilance which created cognitive impairment. It is recognized that the interpretations offered here are not conclusive, nor are they necessarily the only reasonable inferences that may be drawn from the data. However, the pattern of responses does provide strong support for Janis' theory of cognitive impairment as a consequence of the arousal of reflective fear.

The second null hypothesis of the present study stated that the presence of cognitive impairment will not impede the persuasive effects of a message. This hypothesis is retained since the students were positively persuaded while they were experiencing cognitive impairment. The presence of cognitive impairment did not interfere with the achievement of significant persuasion. The retention of this hypothesis disconfirms Janis' theory regarding the nature of fear appeals. Experimental findings clearly contradict Janis' prediction that the creation of cognitive impairment impedes the success of a persuasive message.

This study's purposes were to determine whether cognitive impairment resulted from the arousal of reflective fear, and, if so, whether this impeded persuasion. The findings indicate that the arousal of reflective fear does create cognitive impairment in Janis' terms, but that the existence of this form of cognitive impairment does not impede persuasion.

These results are contradictory to the effect that Janis predicted when he wrote that because cognitive impairment interferes with the reception of a message, its presence minimizes the achievement of persuasion. Since the students in the present study were significantly persuaded toward the advocated idea while exhibiting signs of cognitive impairment, we cannot accept the utility of Janis' theory. Admittedly, this investigation was a preliminary study, and its findings, while significant, are certainly not absolute. In order to determine conclusively the utility of Janis' theory more research must be conducted.

Two specific suggestions are offered for future investigators. First, in subsequent projects more attention should be devoted to establishing the behavioral correlates of vigilance and cognitive impairment. In the construction of a measuring instrument, items should be included which specifically test for the behaviors that Janis proposes for these two states. A second suggestion for future research is the development of an improved instrument for measuring the perception and/or discreditation of communicator credibility. By employing a more sensitive measure of credibility, we could determine whether subjects attempt to discredit a source of fear.

For those of us who have experienced continued frustration over the erratic and inconclusive findings that have characterized over twenty years of research in the area of fear appeals, this study's findings offer no panacea--in fact, they serve to exacerbate the frustration. It seems that the search for a stable theory regarding the operation and effects of fear appeals has not yet ended.

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